FIG. 1(a)

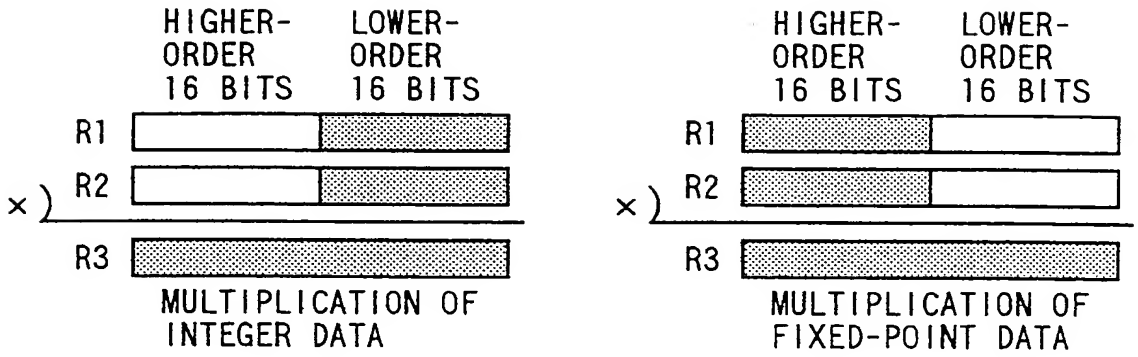


FIG. 1(b)

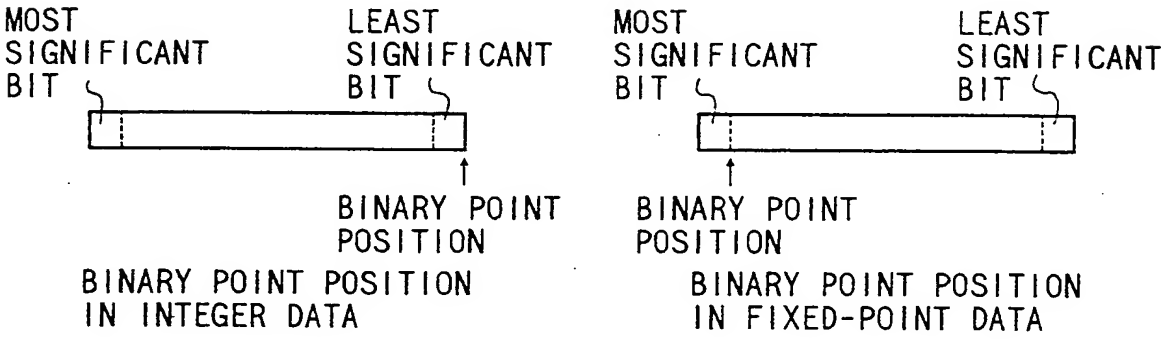


FIG. 1(c)

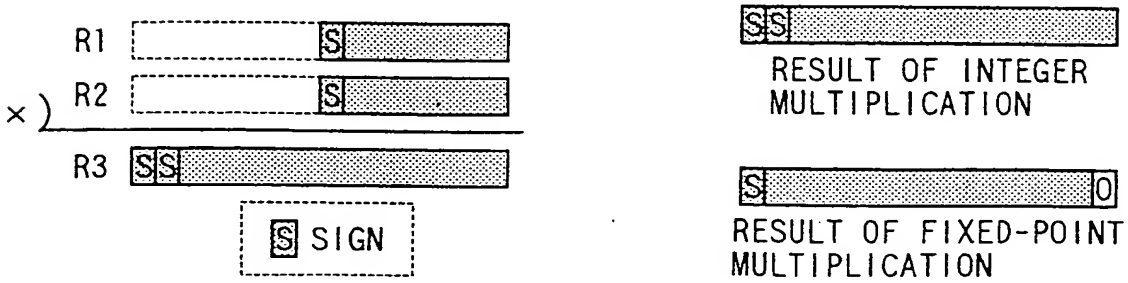


FIG. 2

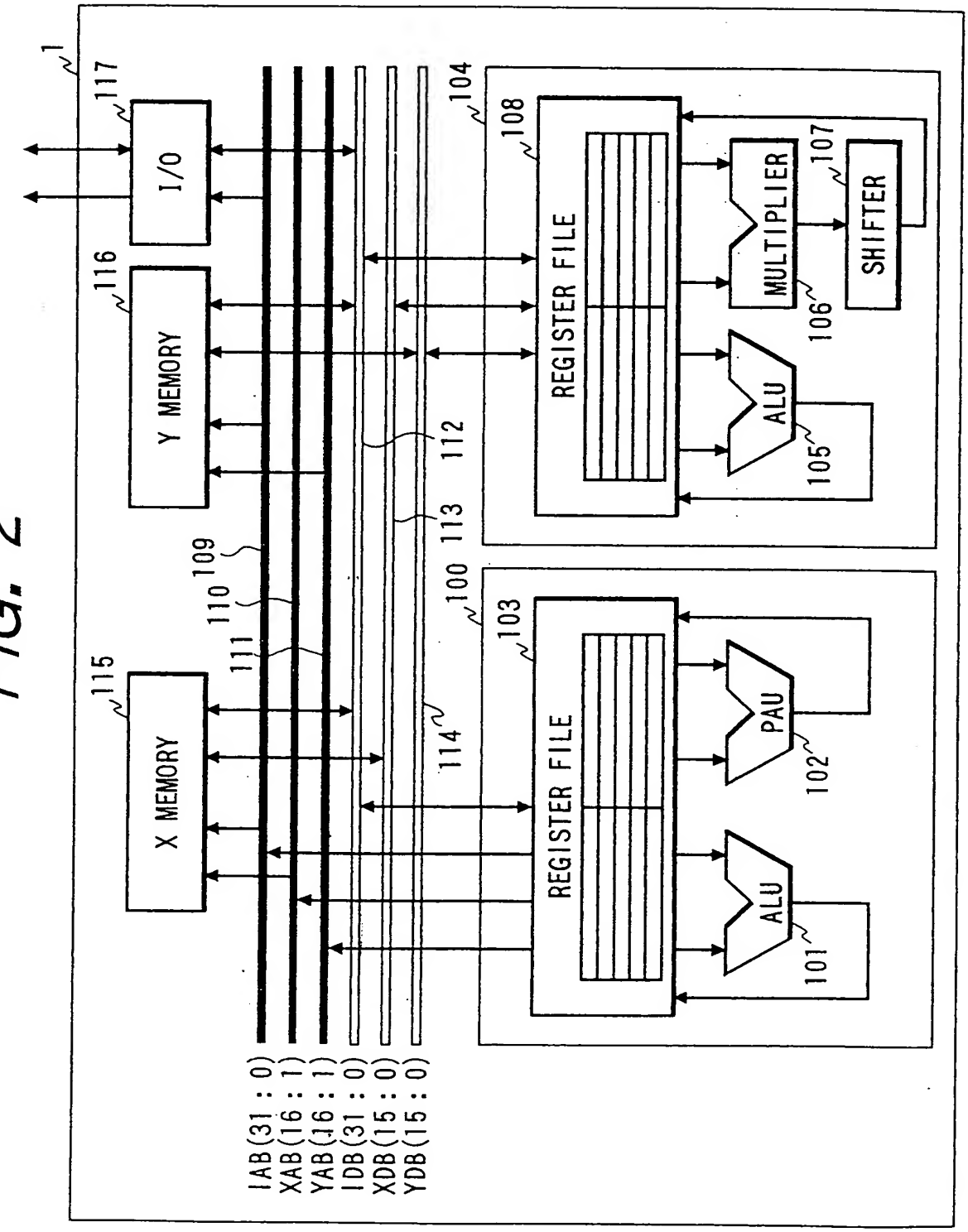

1
117
I/O
116
Y MEMORY
115
X MEMORY
109
110
111
112
113
114
100
103
REGISTER FILE
ALU
101
PAU
102
104
108
REGISTER FILE
ALU
105
MULTIPLIER
106
SHIFTER
107
IAB(31 : 0)
XAB(16 : 1)
YAB(16 : 1)
IDB(31 : 0)
XDB(15 : 0)
YDB(15 : 0)

FIG. 3

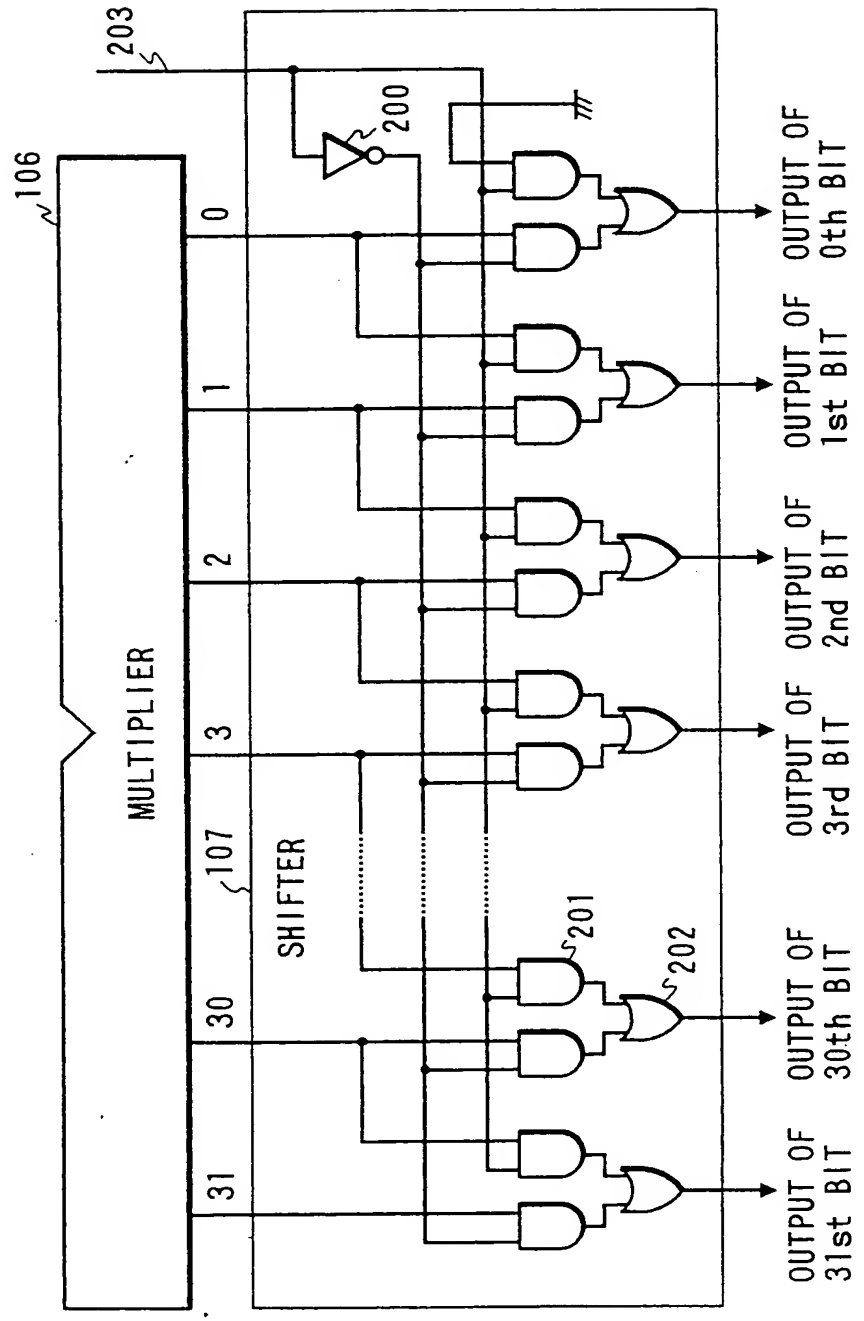

106
MULTIPLIER
107
SHIFTER
203
200
201
202
0
1
2
3
30
31
OUTPUT OF 0th BIT
OUTPUT OF 1st BIT
OUTPUT OF 2nd BIT
OUTPUT OF 3rd BIT
OUTPUT OF 30th BIT
OUTPUT OF 31st BIT

FIG. 4

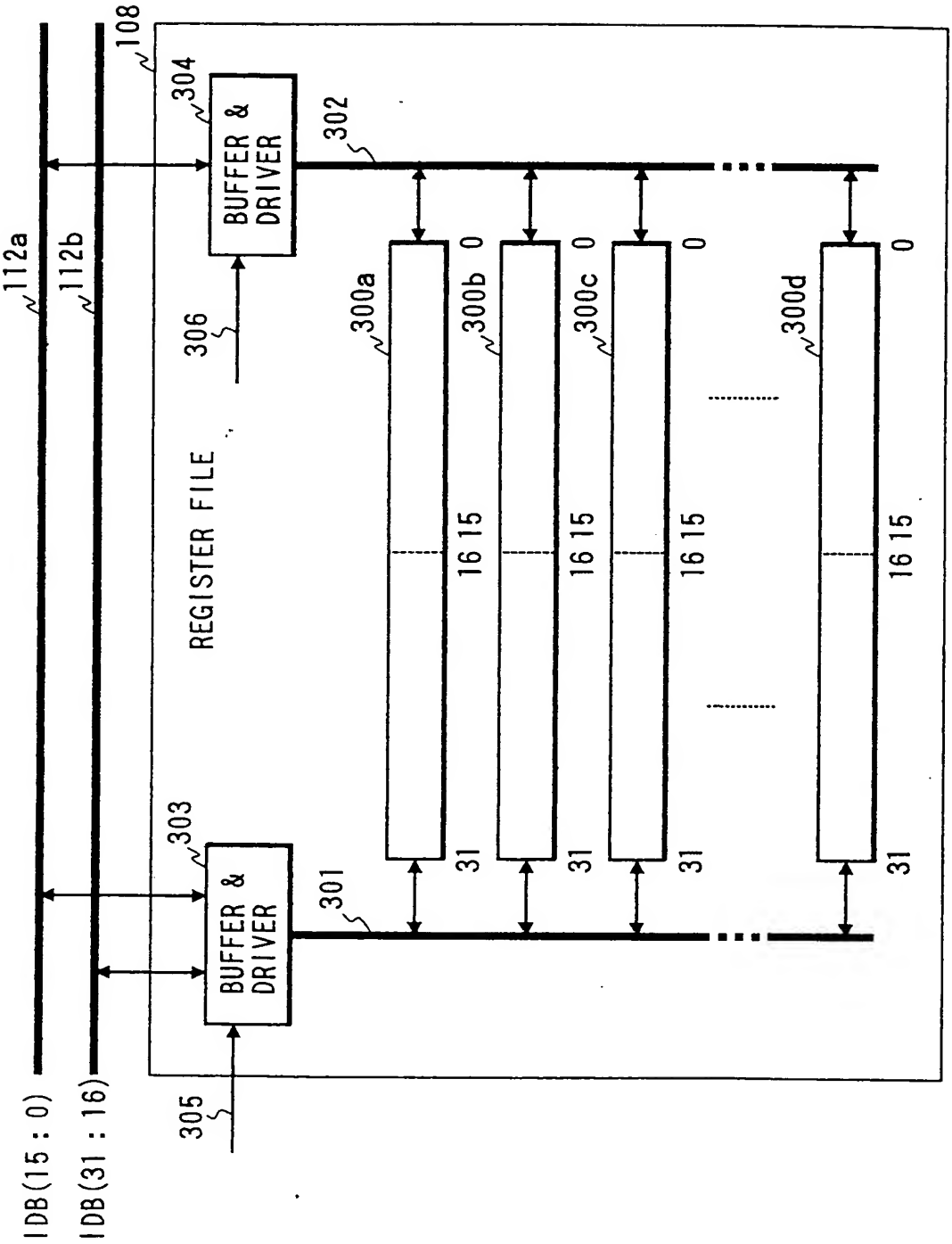

IDB(15 : 0)
IDB(31 : 16)
112a
112b
108
304
BUFFER & DRIVER
302
306
REGISTER FILE
300a
300b
300c
300d
16 15
0
31
303
BUFFER & DRIVER
301
305

FIG. 5

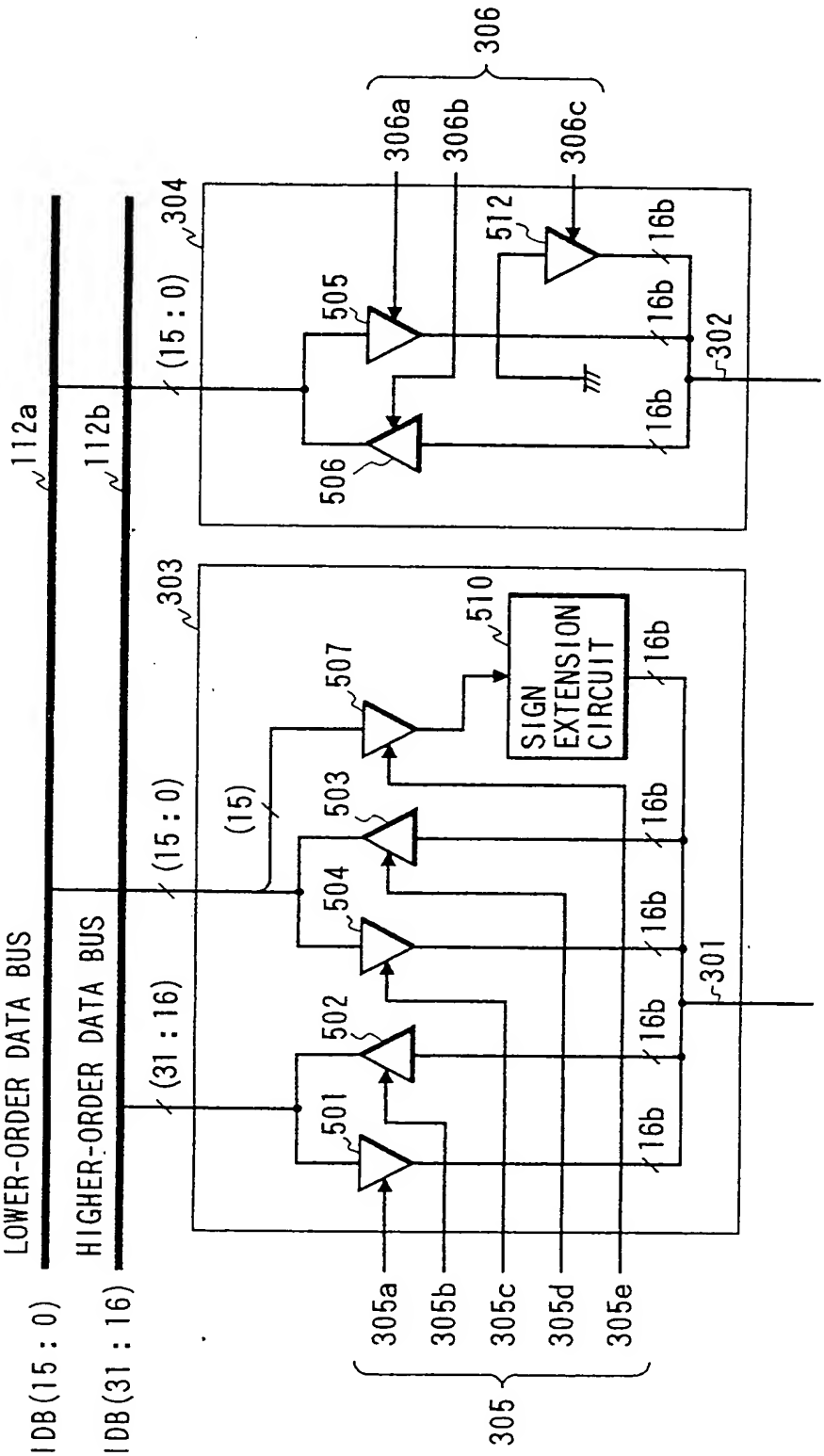
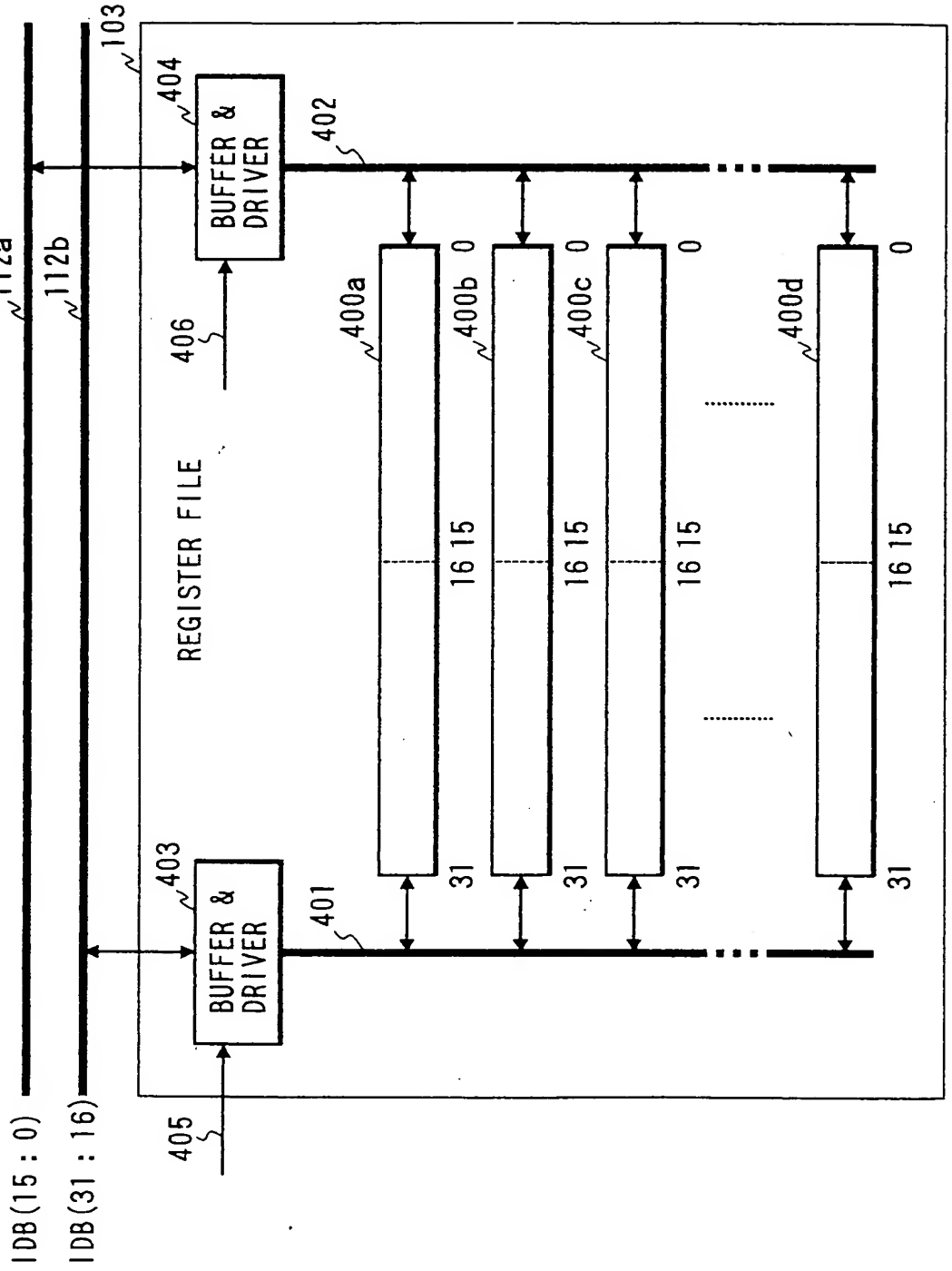

IDB(15 : 0)
IDB(31 : 16)
LOWER-ORDER DATA BUS
HIGHER-ORDER DATA BUS
112a
112b
(31 : 16)
(15 : 0)
(15)
(15 : 0)
303
304
306
306a
306b
306c
305
305a
305b
305c
305d
305e
501
502
503
504
505
506
507
510
512
SIGN EXTENSION CIRCUIT
16b
301
302

FIG. 6

		305a	305b	305c	305d	305e	306a	306b	306c
LOADING LONG WORD		1	0	0	0	0	1	0	0
STORING LONG WORD		0	1	0	0	0	0	1	0
INTEGER DATA	LOADING WORD	0	0	0	0	1	1	0	0
	STORING WORD	0	0	0	0	0	0	1	0
FIXED-POINT DATA	LOADING WORD	0	0	1	0	0	0	0	1
	STORING WORD	0	0	0	1	0	0	0	0

FIG. 7


IDB(15 : 0)
IDB(31 : 16)
112a
112b
103
BUFFER & DRIVER
404
402
406
405
403
401
REGISTER FILE
400a
400b
400c
400d
0
16 15
31